

Table of Contents

ACRONYMS.....	A-1
---------------	-----

CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

1.1	Introduction.....	1-1
1.2	Project Status	1-1
1.2.1	History.....	1-1
1.2.2	System Linkage.....	1-2
1.2.3	Other Planning Studies and Projects.....	1-2
1.3	Project Purpose	1-3
1.4	Project Needs	1-4
1.4.1	Bridge Condition.....	1-5
1.4.1.1	Sufficiency Rating	1-5
1.4.1.2	Substructure Conditions.....	1-6
1.4.1.3	Superstructure Conditions.....	1-6
1.4.1.4	Shoulders and Traffic Railings	1-7
1.4.2	Continuity and Capacity	1-8
1.4.2.1	Continuity	1-8
1.4.2.2	Capacity	1-9
1.4.3	Accident History and Deficiencies	1-11
1.4.4	Bicycle/Pedestrian Safety and Linkage	1-12
1.5	Project Objectives	1-12

CHAPTER 2: ALTERNATIVES

2.1	Alternative Development Process.....	2-1
2.2	Conceptual Alternatives Considered.....	2-2
2.2.1	Alternative 1 – No Build.....	2-2
2.2.2	Alternative 2 – Widen Existing Bridge.....	2-2
2.2.3	Alternative 3 – Construct New Southbound Bridge	2-3
2.2.4	Alternative 4 – Construct New Bridge with Pedestrian/Bicycle Facility on Existing Bridge	2-3
2.2.5	Alternative 5 – Construct New Bridge (Staged).....	2-3
2.2.6	Alternative 6 – Construct New Bridge on Alternate Alignment.....	2-4
2.2.7	Alternative 7 – Construct New Bridge (Non-staged)	2-5
2.3	Alternatives Advanced.....	2-5
2.3.1	No Build Alternative.....	2-5
2.3.2	Build Alternative – Preferred Alternative.....	2-6
2.3.2.1	Summary	2-6
2.3.2.2	US-191 Colorado River Bridge Replacement – Phase 1	2-7

2.3.2.3 Roadway Widening Between 400 North and the US-191
Colorado River Bridge – Future Phase 2-9

2.3.2.4 Courthouse Wash Structure Widening – Future Phase..... 2-10

2.3.2.5 Roadway Widening Between the US-191 Colorado
River Bridge and Potash Road – Future Phase 2-10

CHAPTER 3: ENVIRONMENT

3.1 Land Use 3-1

3.1.1 Land Use and Development Trends..... 3-1

3.1.1.1 Grand County..... 3-2

3.1.1.2 Moab 3-3

3.1.1.3 Division of Forestry, Fire and State Lands 3-3

3.1.1.4 Division of Wildlife Resources..... 3-4

3.1.1.5 National Park Service 3-4

3.1.1.6 Bureau of Land Management..... 3-5

3.1.1.7 United States Department of Energy 3-5

3.1.2 No Build Alternative..... 3-6

3.1.3 Build Alternative..... 3-6

3.1.4 Mitigation Measures for Land Use Impacts..... 3-7

3.2 Farmland 3-8

3.3 Community Resources 3-8

3.3.1 Community Character and Cohesion 3-9

3.3.2 Environmental Justice Populations 3-10

3.3.3 Parks and Other Recreational Resources 3-12

3.3.4 Property Acquisition 3-15

3.3.5 Impacts to Community Character and Cohesion 3-16

3.3.6 Impacts to Environmental Justice Populations 3-17

3.3.7 Impacts to Parks and Other Recreational Resources 3-17

3.3.8 Mitigation Measures for Community Impacts..... 3-19

3.4 Economics..... 3-20

3.4.1 Economic Setting 3-20

3.4.2 No Build Alternative..... 3-22

3.4.3 Build Alternative..... 3-22

3.4.4 Mitigation for Economic Impacts 3-24

3.5 Pedestrian and Bicyclist Considerations 3-25

3.6 Air Quality 3-25

3.6.1 Existing Air Quality Conditions 3-26

3.6.2 Air Quality Impacts..... 3-26

3.6.3 Mitigation Measures for Air Quality 3-27

3.7 Noise 3-28

3.7.1 Existing Noise Environment..... 3-29

3.7.2	No Build Alternative.....	3-29
3.7.3	Build Alternative.....	3-30
3.7.4	Mitigation Measures for Traffic Noise	3-30
3.8	Geology and Soils.....	3-31
3.9	Water Resources	3-32
3.9.1	Surface Waters	3-33
3.9.2	Groundwater	3-35
3.9.3	Current Status of Surface Water Quality	3-35
3.9.4	Current Status of Groundwater Quality	3-37
3.9.5	Existing Water Rights.....	3-38
3.9.6	No Build Alternative.....	3-41
3.9.7	Build Alternative.....	3-41
3.9.8	Mitigation Measures for Water Resources	3-44
3.10	Floodplains.....	3-48
3.10.1	FEMA Designated Floodplains.....	3-48
3.10.2	No Build Alternative.....	3-48
3.10.3	Build Alternative.....	3-49
3.10.4	Mitigation Measures for Floodplains.....	3-49
3.11	Wild and Scenic Rivers.....	3-49
3.12	Wetlands	3-50
3.12.1	Wetland Areas.....	3-50
3.12.2	Wetland Functions and Values	3-51
3.12.3	No Build Alternative.....	3-54
3.12.4	Build Alternative.....	3-55
3.12.5	Mitigation Measures for Wetlands.....	3-56
3.12.6	Only Practicable Alternative Finding	3-56
3.13	Vegetation and Wildlife.....	3-57
3.13.1	Description of Vegetation and Wildlife	3-57
3.13.2	No Build Alternative.....	3-59
3.13.3	Build Alternative.....	3-59
3.13.4	Mitigation Measures for Vegetation and Wildlife	3-59
3.14	Threatened, Endangered, and Other Sensitive Species.....	3-60
3.14.1	Threatened, Endangered, and Candidate Species	3-60
3.14.2	Sensitive Species.....	3-62
3.14.3	Migratory Birds.....	3-63
3.14.4	No Build Alternative.....	3-63
3.14.5	Build Alternative.....	3-63
3.14.6	Mitigation Measures for Threatened, Endangered, and Other Sensitive Species.....	3-65
3.15	Invasive Species.....	3-68
3.15.1	Invasive Species or Noxious Weeds.....	3-68

3.15.2	No Build and Build Alternative	3-69
3.15.3	Mitigation Measures for Invasive Species or Noxious Weeds	3-69
3.16	Paleontological, Archaeological, and Historic Resources	3-69
3.16.1	Paleontological Resources	3-69
3.16.2	Archaeological and Historic Resources	3-69
3.16.3	Finding of Effect	3-70
3.16.4	Consultation	3-71
3.16.5	Section 4(f) Considerations for Historic Properties	3-72
3.16.6	Mitigation Measures for Cultural Resources	3-73
3.17	Hazardous Materials or Waste	3-74
3.17.1	Identified Hazardous Materials and Waste Facilities	3-74
3.17.2	No Build Alternative	3-75
3.17.3	Build Alternative	3-76
3.17.4	Other Potential to Encounter Hazardous Materials or Waste	3-81
3.17.5	Construction Related Impacts	3-82
3.17.6	Mitigation Measures for Hazardous Materials or Waste	3-82
3.18	Visual Quality	3-85
3.18.1	Visual Setting	3-85
3.18.2	No Build Alternative	3-86
3.18.3	Build Alternative	3-86
3.18.4	Mitigation Measures for Visual Quality	3-87
3.19	Cumulative Effects	3-88
3.19.1	Baseline, Geographic, and Temporal Boundaries	3-89
3.19.2	Contributing Actions	3-89
3.19.3	Cumulative Effects to the Sustainability of the Tourism-based Economy	3-91
3.19.4	Cumulative Effects to Bicycle and Pedestrian Facilities	3-92
3.19.5	Cumulative Effects to Drainage	3-93
3.19.6	Mitigation for Cumulative Effects	3-94

CHAPTER 4: SECTION 4(F) EVALUATION

4.1	Introduction	4-1
4.2	Proposed Action	4-2
4.3	De Minimis Findings	4-3
4.3.1	Arches National Park	4-3
4.3.2	Lions Park	4-5
4.3.3	Colorado River Bridge Underpass Trail	4-7
4.3.4	Courthouse Wash to Colorado River Bridge Trail	4-8
4.3.5	Scott Matheson Wetland Preserve	4-9
4.4	Programmatic Section 4(f) Evaluation	4-12
4.4.1	Bridge Over Colorado River	4-12

4.4.1.1 Applicability 4-12
 4.4.1.2 Alternatives Considered..... 4-13
 4.4.1.3 Measures to Minimize Harm 4-14
 4.4.1.4 Coordination 4-15
 4.4.1.5 Determination and Approval..... 4-15

CHAPTER 5: MITIGATION

5.1 Land Use 5-1
 5.2 Farmlands..... 5-1
 5.3 Community Resources 5-2
 5.4 Economics..... 5-3
 5.5 Pedestrian and Bicyclist Considerations 5-3
 5.6 Air Quality 5-4
 5.7 Noise 5-4
 5.8 Geology and Soils 5-5
 5.9 Water Resources 5-5
 5.10 Floodplains..... 5-7
 5.11 Wild and Scenic Rivers..... 5-7
 5.12 Wetlands 5-8
 5.13 Vegetation and Wildlife..... 5-8
 5.14 Threatened, Endangered, and Other Sensitive Species..... 5-8
 5.15 Invasive Species..... 5-8
 5.16 Paleontological, Archaeological, and Historic Resources 5-9
 5.17 Hazardous Materials or Waste 5-10
 5.18 Visual Quality 5-12
 5.19 Cumulative Effects..... 5-12
 5.20 Section 4(f)..... 5-12

CHAPTER 6: COMMENTS AND COORDINATION

6.1 Agency and Public Participation Meetings..... 6-1
 6.1.1 Public Scoping Meeting and Project Workshop 6-2
 6.1.2 Agency Scoping Meeting..... 6-2
 6.1.3 Focus Workshops..... 6-3
 6.1.4 Other Interagency Meetings..... 6-6
 6.1.5 Other Coordination with Local Entities 6-6
 6.1.6 Public Hearing 6-7
 6.2 Other Outreach Methods..... 6-9
 6.2.1 Origin and Destination Surveys 6-9
 6.2.2 Project Website 6-9
 6.2.3 Media Coverage/News Articles 6-9
 6.2.4 Consultation with Agencies and Other Interested Parties..... 6-10

6.3 Responses to Comments 6-11
6.3.1 Responses to Comments Received Prior to Release of Draft EA.... 6-11
6.3.2 Responses to Comments Received on the Draft EA..... 6-12

REFERENCES..... R-1

APPENDICES

Appendix A Noise Analysis
Appendix B USFWS Biological Opinion
Appendix C Memorandum of Agreement
Determination of Eligibility and Finding of Effect
Appendix D Correspondence
Appendix E Draft EA Comments and Responses

LIST OF TABLES

Table 1.4-1 Bridge Sufficiency Rating Criteria for Federal Funding 1-5
Table 1.4-2 LOS Criteria for Class I Two-Lane Highways 1-9
Table 1.4-3 LOS Ranges for Unsignalized Intersections 1-9
Table 1.4-4 Maximum Hourly Traffic Capacity by LOS..... 1-10
Table 1.4-5 Year 2030 Intersection LOS 1-11
Table 1.5-1 Project Objectives and Goals 1-13
Table 2.1-1 Ability of Conceptual Alternatives to Meet Project Objectives 2-2
Table 3.3-1 Population Growth Trends..... 3-9
Table 3.3-2 Minority Populations 3-11
Table 3.3-3 Household Income and Poverty Levels 3-12
Table 3.3-4 Existing Parks and Other Recreational Resources..... 3-14
Table 3.3-5 Planned Parks and Other Recreational Resources 3-15
Table 3.3-6 Existing and Proposed Highway Right of Way and Other
Property Acquisition 3-15
Table 3.3-7 Impacts to Existing and Planned Parks and Other
Recreational Resources..... 3-18
Table 3.3-8 Grand County Employment by Sector 3-21
Table 3.7-1 Noise Abatement Approach Criteria..... 3-28
Table 3.7-2 Total Number of Receptors and Dwelling Units that Approach,
Equal, or Exceed the Noise Abatement Criteria 3-29
Table 3.9-1 Monthly Mean Streamflow Averages for Colorado River 3-34
Table 3.9-2 Monthly Mean Streamflow Averages for Courthouse Wash..... 3-34
Table 3.9-3 Impaired Assessment Units in Upper Colorado-Kane Springs
Watershed Requiring TMDL Analysis 3-36
Table 3.9-4 Surface Water Points of Diversion Within 0.5 Miles of the Project..... 3-38
Table 3.9-5 Public Drinking Water Supply..... 3-40

Table 3.9-6	Wells Within Two Miles of the Project	3-40
Table 3.9-7	Drainage Areas along US-191 Project Corridor	3-42
Table 3.9-8	Required Permits and Approvals Pertaining to Water Resources	3-45
Table 3.12-1	Wetland Functions and Values Summary	3-54
Table 3.12-2	Wetland Impacts	3-55
Table 3.14-1	Federally Listed and Candidate Species for Grand County, Utah	3-61
Table 3.14-2	Sensitive Species.....	3-62
Table 3.16-1	NRHP Eligible Archaeological Sites	3-70
Table 3.16-2	NRHP Eligible/Listed Architectural Structures.....	3-71
Table 3.16-3	Avoidance and Protection Measures Included in the Build Alternative.....	3-73
Table 3.17-1	Hazardous Materials or Waste Sites of Potential Concern	3-76
Table 3.19-1	Contributing Actions.....	3-90
Table 6.1-1	Agency and Public Participation Meetings.....	6-1
Table D-1	Consultation with Agencies and Other Interested Parties.....	Appendix D
Table E-1	Detailed Responses to Comments Received on the Draft EA ...	Appendix E

LIST OF FIGURES

(Figures are located at the end of each Chapter. Also see noise figures in Appendix A and cultural resources in Appendix C.)

Figure 1-1	Project Study Area
Figure 1-2	Colorado River Crossings
Figure 1-3	Trails and Constraints
Figure 2-1	Conceptual Alternatives (2 sheets)
Figure 2-2	Typical Sections – No Build
Figure 2-3	Typical Sections – Build Alternative (2 sheets)
Figure 2-4	Roadway Design (15 sheets)
Figure 2-5	Colorado River Bridge Preliminary Situation & Layout (5 sheets)
Figure 2-6	Courthouse Wash Bridge Preliminary Situation & Layout (2 sheets)
Figure 3-1	Current & Future Land Use Management
Figure 3-2	Moab City Zoning
Figure 3-3	Demographic Study Area
Figure 3-4	Existing Community Services and Facilities
Figure 3-5	Colorado Basin Kane Springs Watershed
Figure 3-6	Glen Canyon Aquifer
Figure 3-7	Water Resources
Figure 3-8	Drainage Areas
Figure 3-9	Flood Insurance Rate Map
Figure 3-10	Flood Hazard Boundary Map
Figure 3-11	Wetlands (2 sheets)
Figure 3-12	Hazardous Materials and Waste Facilities

Table of Contents

Figure 3-13	Visual Setting (2 sheets)
Figure 4-1	Recreation and Historic Section 4(f) Properties (3 sheets)
Figure 4-2	Wetland Preserve (2 sheets)